

**WHAT IS CLAIMED IS :**

1. A method for preparing a polymer waveguide composed of an under cladding, a core and an upper cladding layers, comprising:
  - 5 1) forming the under cladding coating layer on a substrate;
  - 2) placing above the under cladding layer a mold having the shape formed by assembling at least two waveguide pattern units having predesigned channels and two band parts such that the channels of the units are interconnected and open to the two band parts, in such a way that the recess of the mold and the  
10 under cladding layer face each other to form a void therebetween;
  - 3) injecting a photocurable polymeric resin through one end of the two band parts to fill the void with the resin and photocuring the resin to form the core layer, and removing the mold from the under cladding layer; and
  - 4) forming the upper cladding coating layer on the core layer.
- 15 2. The method of claim 1, wherein the end of the other band part is evacuated during or after the injection of the photocurable polymeric resin.
3. The method of claim 1, wherein the waveguide pattern and band part  
20 have a same depth.
4. The method of claim 1, wherein the mold is a rubber or metal mold prepared by a photolithography or LIGA(Lithographie Galvanoformung Abformung) technique.
- 25 5. The method of claim 1, wherein the substrate is selected from the group consisting of a silicon wafer, an acrylic plate and a glass plate.
6. A polymer waveguide having no lip around the core, which is prepared  
30 by the method of claim 1.
7. The polymer waveguide of claim 6 which comprises a core having a width and a depth ranging from 50 to 1,000 $\mu$ m.
- 35 8. The mold used in the method of claim 1.